

SERVICE
MANUAL 1070

marantz

model 1070

Console Stereo Amplifier

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1. INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for the Marantz Model 1070 Stereo Console Amplifier.

Servicing information and voltage data included in this manual are intended for use by knowledgeable and experienced personnel only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of circuitry operation.

The parts list furnishes complete ordering information. Most replacement parts should be ordered from the Marantz Company. However, a simple description is included for parts which can be obtained locally.

2. PRE-AMPLIFIER

Signals from the input jacks (TUNER, TAPE-1, TAPE-2 & AUX) are applied to the selector switch.

Signals from the PHONO MIC jacks are applied to the other section of the selector switch, then to the phono-amplifier and equalized for proper frequency response. The gain of the phono-amplifier (H401, H403 and H405) is 40dB.

The outputs of the phono-amplifier are fed to the selector switch. The selector switch selects one of signals from MIC, PHONO, TUNER, AUX, TAPE 1, TAPE 2 jacks and feeds it to the TAPE MONITOR switch and TAPE OUT jacks. The selected signal is then applied to the MODE switch, to the balance and volume controls, and finally to the preamplifier consisting of HE01, HE03, HE05 and HE07.

The frequency response is controlled by the Bass, Middle and Treble controls and the resultant output is passed to the PRE OUT jacks through the High-cut and Low-cut filter networks. These networks are switched in and out of the circuit by the filter switches.

3. MAIN AMPLIFIER

The main amplifier consists of differential pre-amplifiers H701 and H703, class "A" driver H707 and direct-coupled drivers H721 and H722.

H709 and H711 act as current limiters.

H726, H727 and H728 form a protector circuit. It protects the speaker from damage due to POWER SWITCH transients or excessively high DC voltage.

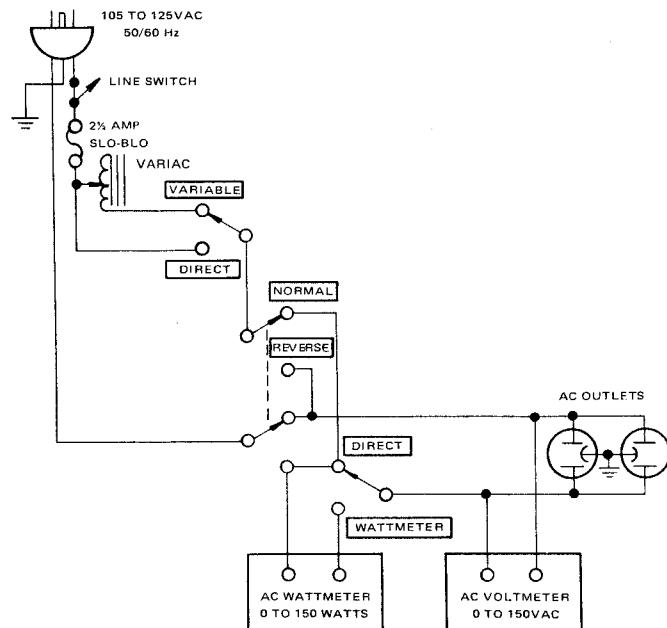


Figure 1. AC Power Control Box Simplified Schematic

4. TROUBLESHOOTING ANALYSIS

1. Excessive line consumption
 - a. Check for shorted H801, H802, H803.
 - b. Check for shorted transistor H001, through H004.
 - c. Check for open H005, H006, R733, R734.
2. No line consumption or zero bias voltage
 - a. Check line cord, fuse, check for shorted H005, H006 R733, R734.
 - b. Check for open rectifiers H801, H802, H803 or open L001.
3. High hum and noise level
 - a. Check filter capacitors C001, C002, C803, C804.
4. Parasitic oscillation
 - a. Check C703, C704, C707, C708, C715, C716

5. POWER AMPLIFIER ADJUSTMENT

1. Adjustment of Idling current

Connect VTVM between J714 and J716. Adjust R733 until the meter reads 10mV. Similarly, connect VTVM between J715 and J717 and adjust R734 until the meter reads 10mV.

2. DC-OFFSET adjustment

Connect VTVM to J723 and J722 (or ground) and adjust R711 until the meter indication reaches 0mV (± 5 mV). Similarly, connect VTVM to R724 and J722 (or ground) and adjust R712 until the meter indication reaches 0mV (± 5 mV).

6. POWER SUPPLY ADJUSTMENT

Connect a voltmeter between J810 and J811. Adjust R807 until meter indicates 40 VDC.

7. TEST EQUIPMENT REQUIRED FOR SERVICING

Table 1 lists the test equipment required for servicing the Model 1070 Stereo Console Amplifier. The wattmeter, ac voltmeter, and variable autotransformer may be assembled as a test fixture as shown schematically in Figure 1. The load resistors and ac ammeter may be assembled into a second test fixture as shown in Figure 2.

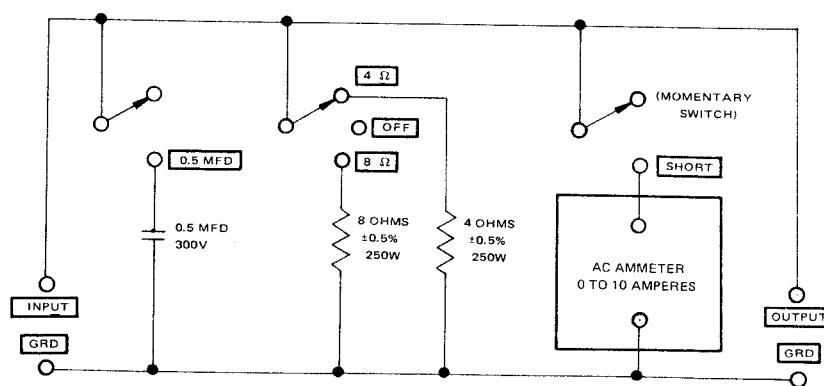


Figure 2. Amplifier Output Load Box Simplified Schematic

Item	Manufacturer and Model No. (or equivalent)	Function
Distortion Analyzer	Hewlett Packard, Model 331A or 333A	Measures distortion and voltage of amplifier output.
Audio Oscillator	Weston Model CVO-100P (NOTE: Less than 0.02 percent residual distortion is required.)	Sinewave and squarewave signal source.
Oscilloscope	Tektronix, Model 503; Data, Model 555	Waveform analysis and troubleshooting.
VTVM	RCA Senior Volt-Ohmyst, Model WV-98C	Voltage and resistance measurements.
AC Wattmeter	Simpson, Model 390	Monitors primary power consumption of amplifier.
AC Ammeter (0 to 10 amps)	Commercial Grade	Monitors amplifier output under short circuit condition.
Line Voltmeter (0 to 150 vac)	Commercial Grade	Monitors potential of primary power to amplifier.
Variable Autotransformer (0 to 140 vac, 10 amps)	Powerstat, Model 116B	Adjusts level of primary power to amplifier.
Shorting Plug	Use phono plug with 600 ohms across center pin and shell.	Shorts amplifier input to eliminate noise pickup.
Power Supply Bleeder Resistor (10 ohms at 1W)	Commercial Grade	Discharges power supply filter capacitors prior to disassembly or resistance measurements.
Output Load Resistor (8 ±0.5%, 250W)	Commercial Grade	Provides 8-ohm load for amplifier output termination.
Output Load Resistor (4 ±5%, 250W)	Commercial Grade	Provides 4-ohm load for amplifier output termination.
Output Load Capacitor (0.5 mfd)	Mylar	Provides capacitive load for instability checks.
AC Power Control Box	Optional Item. Fabricate in accordance with Figure 1.	Monitors and controls primary power for amplifier.
Amplifier Output Load Box	Optional Item. Fabricate in accordance with Figure 2.	Provides various amplifier loads and can monitor shorted output.

8. PERFORMANCE VERIFICATION

Test Procedure

A. Test Equipment

Refer to Table 1 for required test equipment.

B. Preliminary Procedures

1. Make the test setup shown in Figure 1 with the instrument controls set in the following positions:

Line Switch	OFF
Variable-line switch variable	
Wattmeter Switch	ON
Variable Autotransformer	0V (fully CCW)
Load	8 ohms (0.5 mfd - OFF)
Audio Generator	
Frequency	1 KHz
Output	5V range
Gain	Minimum
AC VTVM	30V range

2. Make sure that connections between the resistive load and the system terminals of the Model 1070 have negligible resistance when compared with the resistance of the load itself. Appreciable resistance in wiring adds to the total load, resulting in inaccurate measurements of output power.
3. Connect amplifier output to load and connect AC cord to line power. Connect shorting plugs to the Phono input jacks of the model 1070.

C. Total Hum and Noise Test

1. With shorting plugs connected to the Phono input jacks and an 8 ohm resistive load connected across the speaker system output terminals, connect a distortion analyzer across the load.
NOTE: If the distortion analyzer does not contain a built-in voltmeter, an AC VTVM may be substituted.
2. Set the distortion analyzer controls for voltage measurements and apply power to the amplifier. Set the volume control fully CCW. Set the SELECTOR switch to PHONO.
3. If the distortion analyzer indicates more than 2.0 mV refer to the trouble analysis section of this manual.
4. Set the volume control fully CW. If the distortion analyzer indicates more than 20 mV refer to the trouble analysis section of this manual.

D. Maximum Power Output

1. Connect the audio oscillator to the AUX input. Set audio oscillator frequency to 1 KHz. Set SELECTOR switch to AUX.
2. With the distortion analyzer connected across the output load (8-ohm), set the analyzer on the 30 VAC scale.
3. Turn the analyzer on and increase the audio oscillator output to 180 mV. The AC VTVM should read 16.8 VAC or more.

E. Harmonic Distortion Test

1. Set the frequency of the audio oscillator and the distortion analyzer to 20 KHz.
2. Set the controls of the analyzer for voltage measurement on the 30 volt scale.
3. Adjust the audio oscillator output level until the analyzer meter indicates 16.8 VAC.
4. Switch the distortion analyzer to Set Level and adjust SENSITIVITY for full scale reading on 0-1% scale.
5. Measure the total harmonic distortion with the analyzer and verify it is less than 0.3%.
NOTE: Any parasitic oscillation in the amplifier will be displayed on the oscilloscope when capacitance is switched into the load.

6. Switch the distortion analyzer back to SET LEVEL. (Do not readjust sensitivity of analyzer.)
7. Change the frequency of the audio oscillator and distortion analyzer to 1 KHz. Adjust audio oscillator output for a full scale reading on the 0–1% scale.
8. Measure the distortion, verifying it is no greater than 0.3%.
9. Repeat steps 7 and 8, changing frequency to 20 Hz. Distortion should be no more than 0.3%.
10. Check for parasitic oscillation; there should be none.

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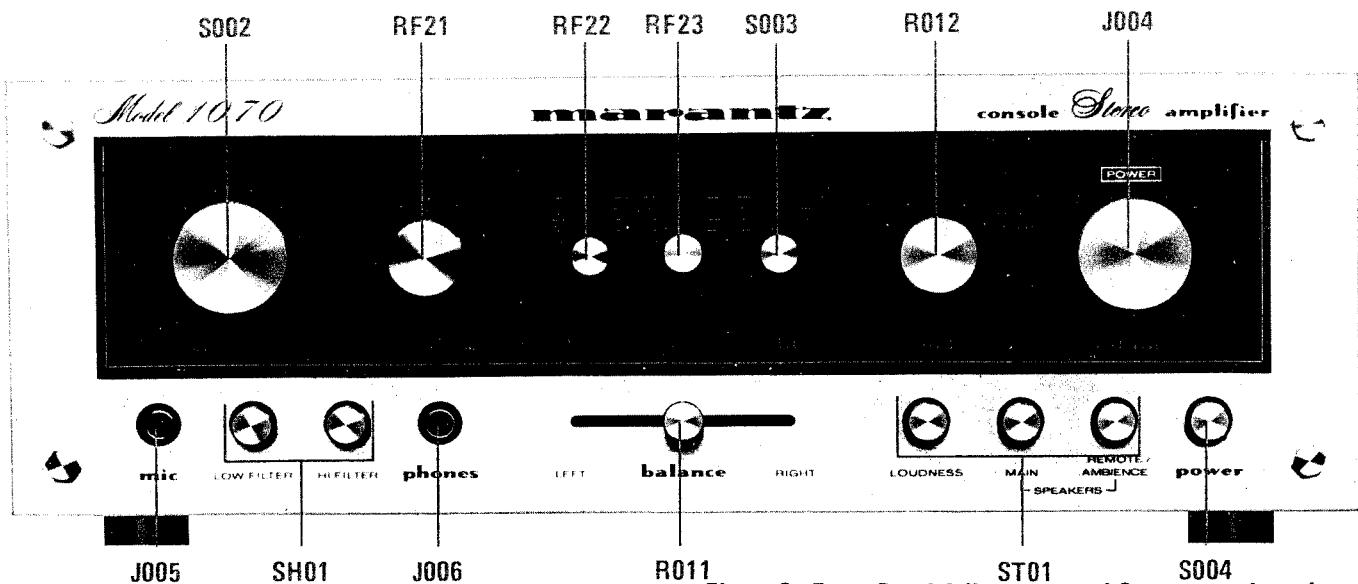


Figure 3. Front Panel Adjustment and Component Locations

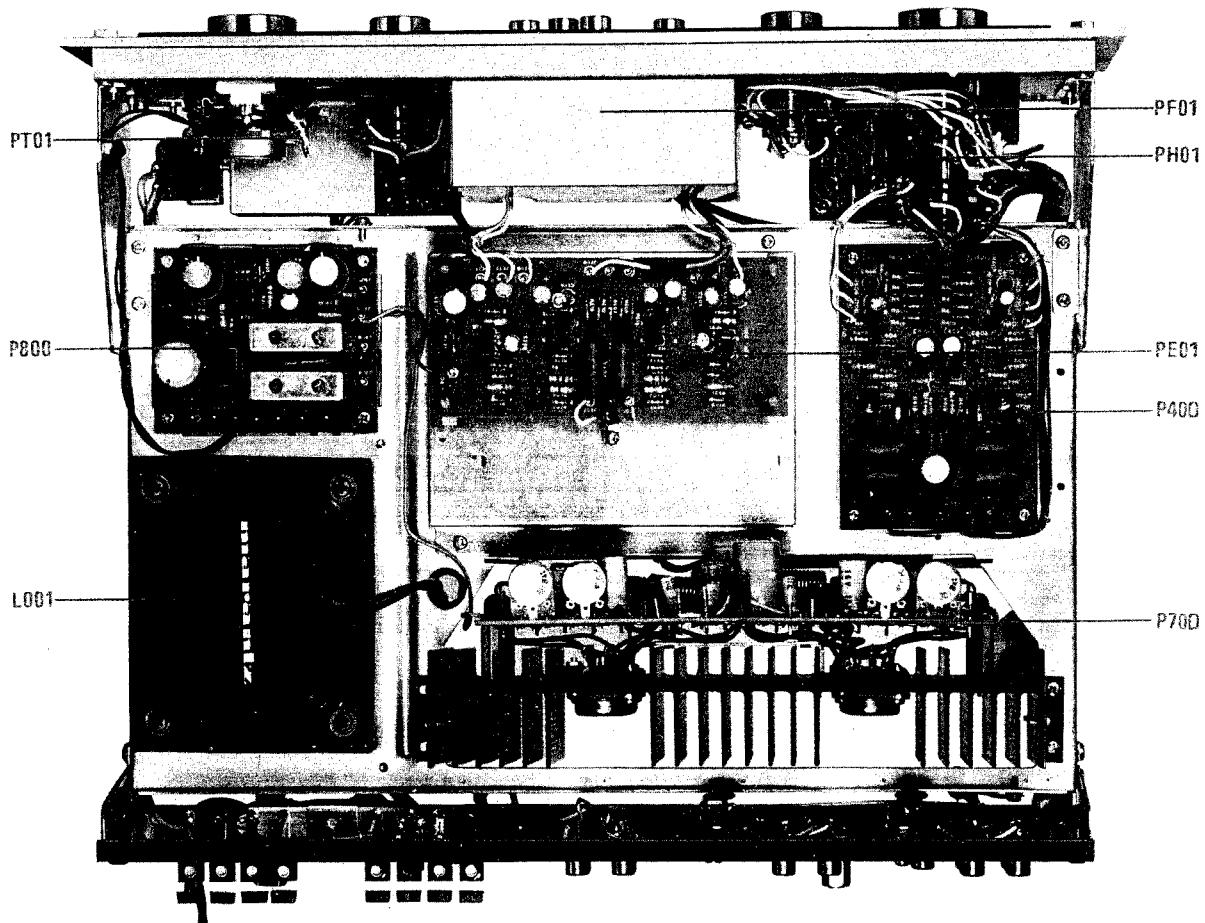


Figure 4. Main Chassis Component Locations (Top View)

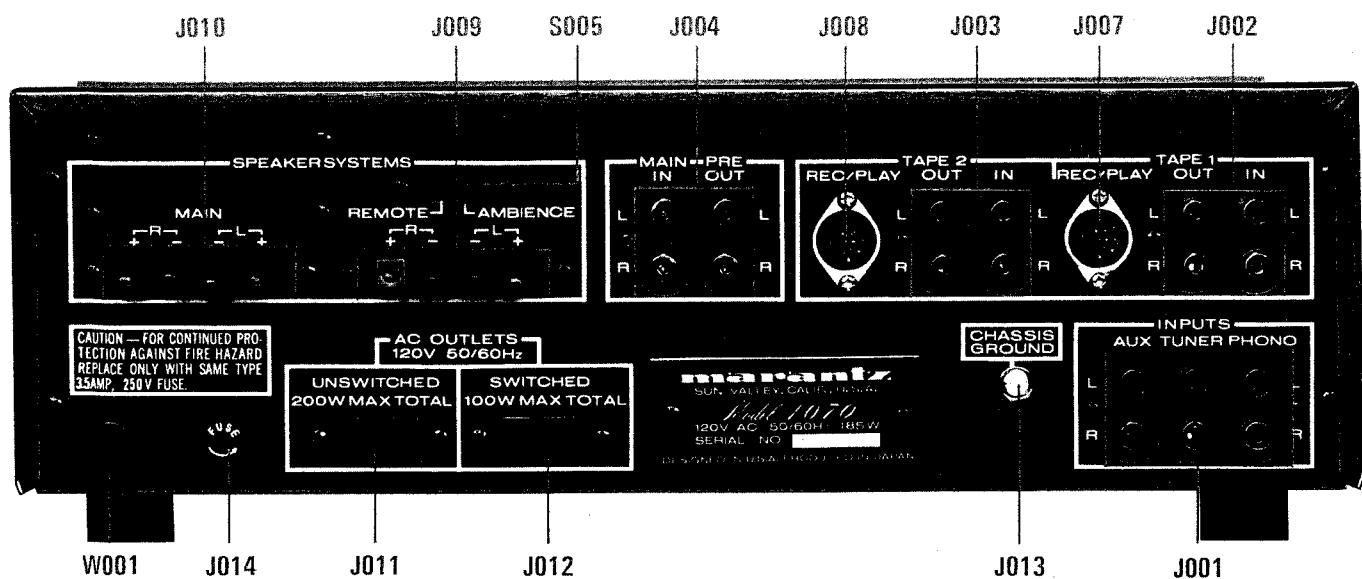


Figure 5. Rear Panel Adjustment and Component Locations

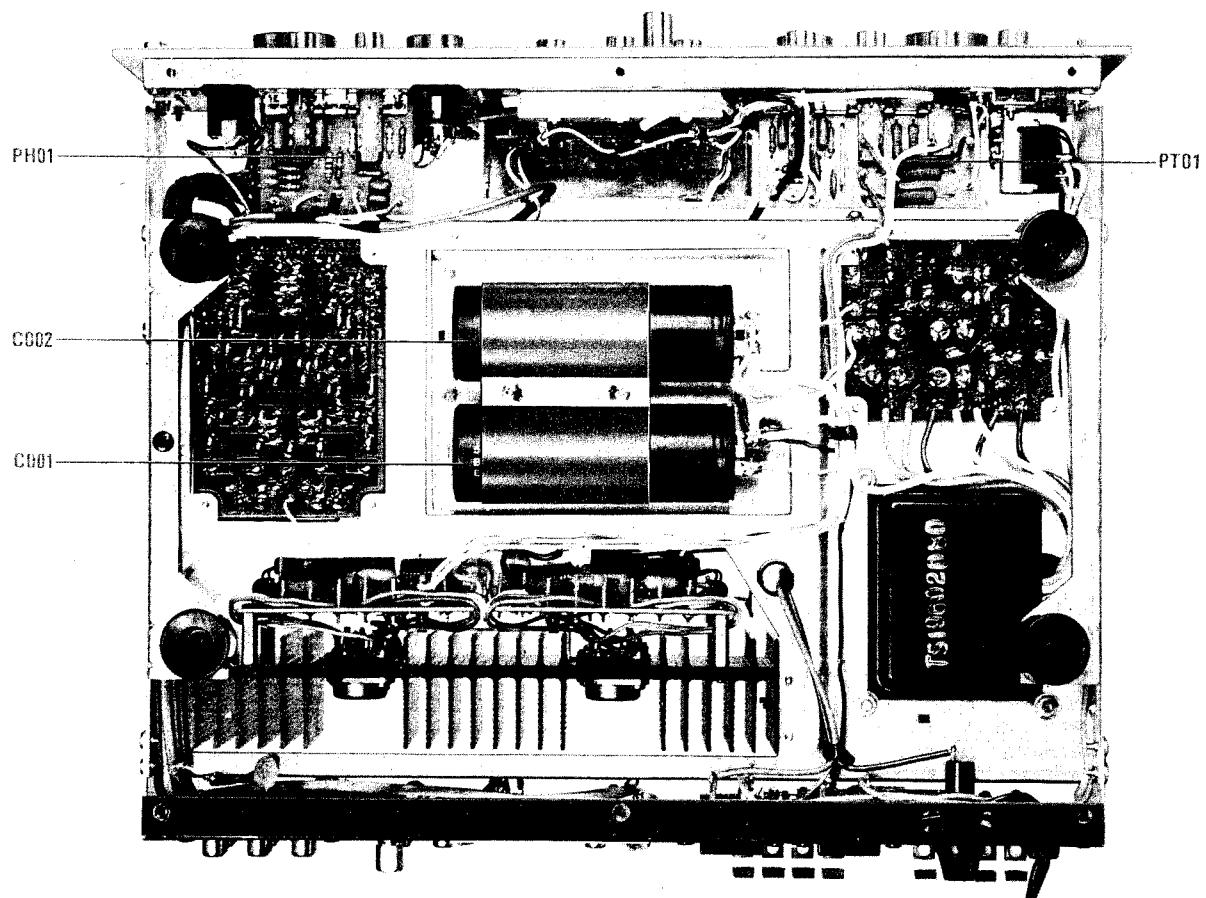


Figure 6. Main Chassis Component Locations (Bottom View)

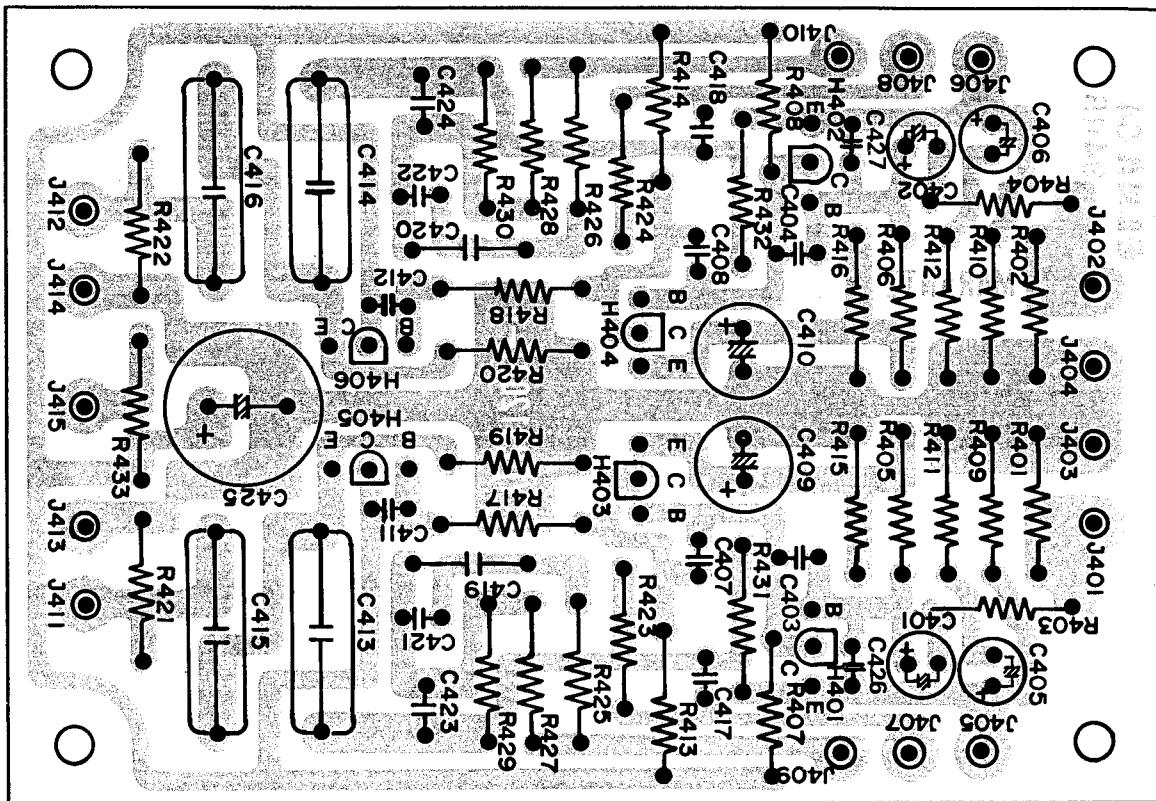


Figure 7. Phono Amplifier Assembly P400 Component Locations

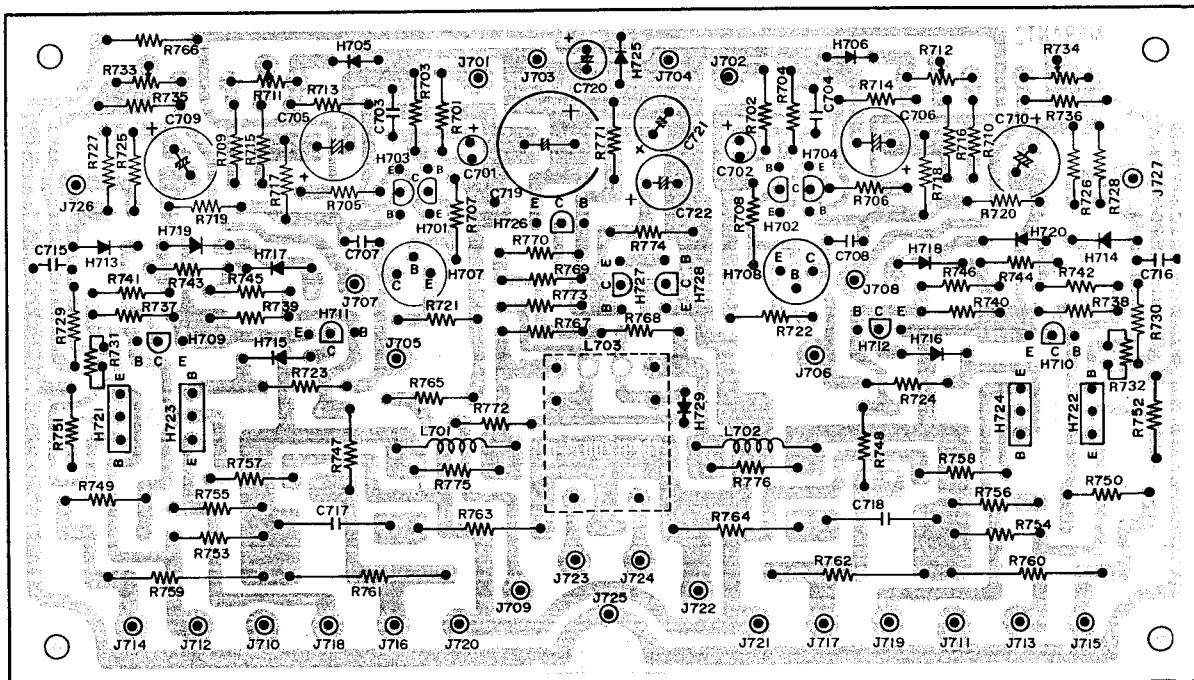
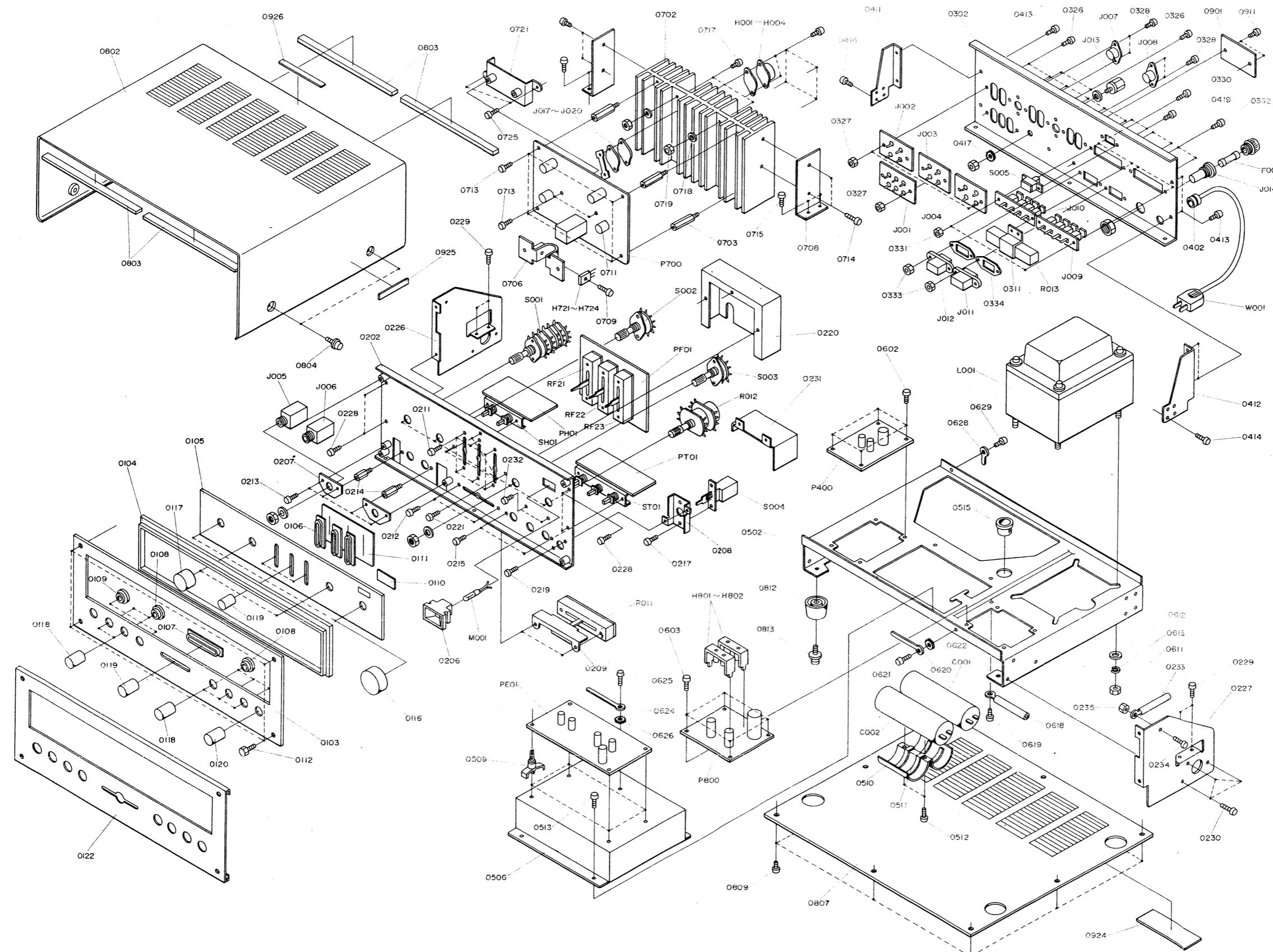


Figure 8. Main Assembly P700 Component Locations



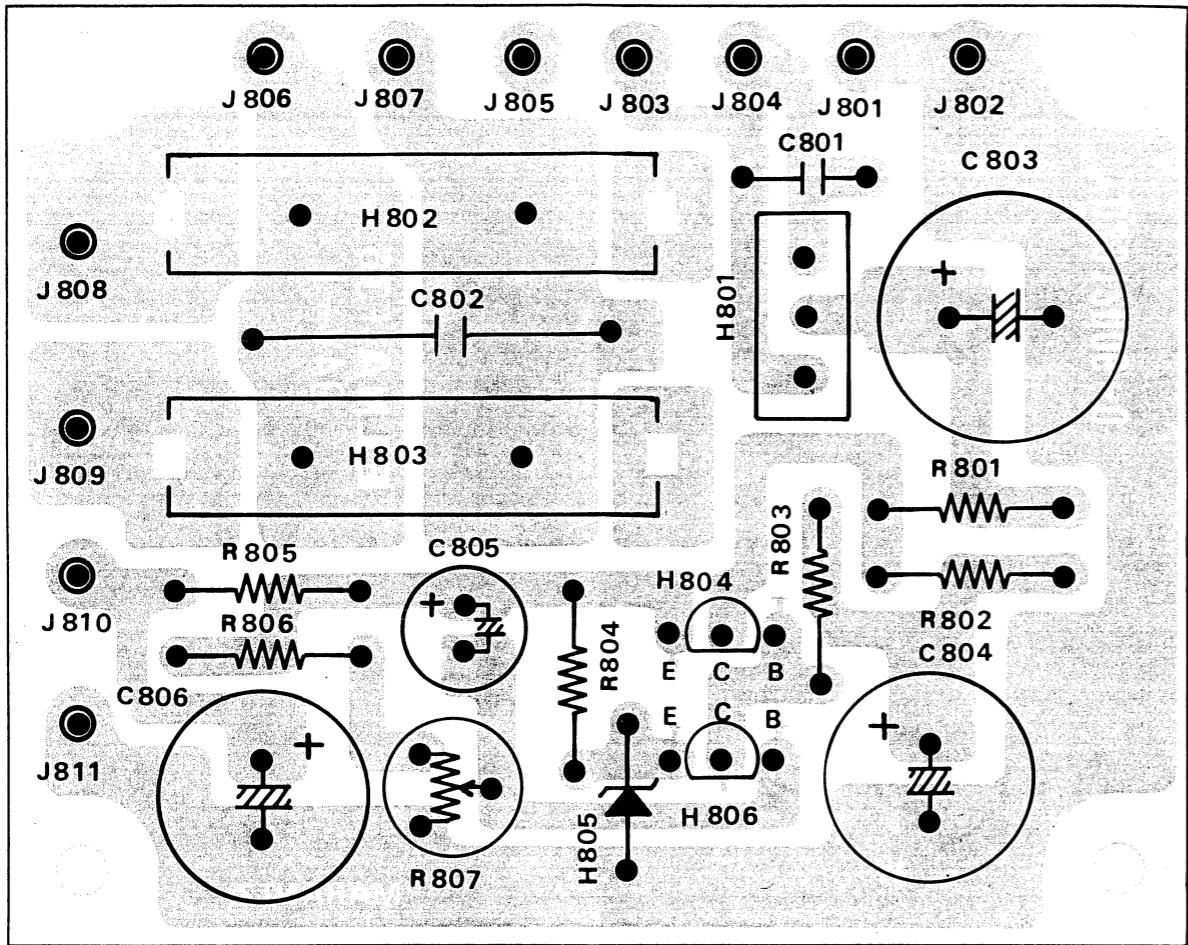


Figure 9. Power Supply Circuit Assembly P800 Component Locations

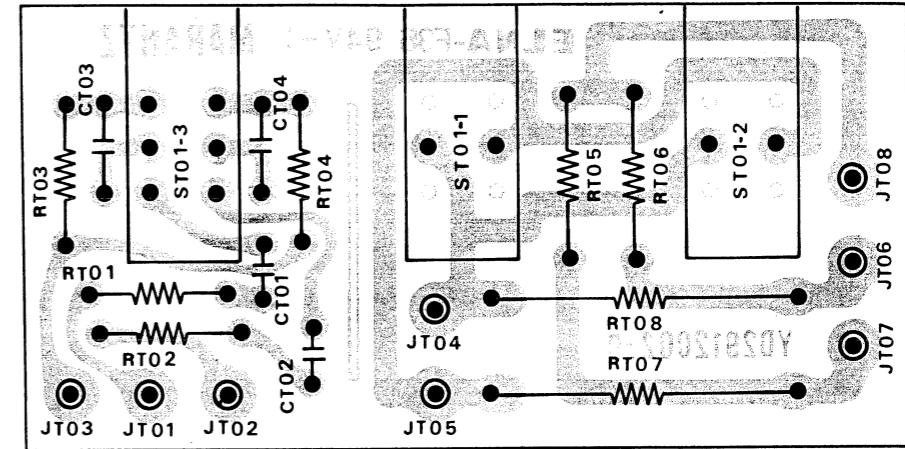


Figure 11. Speaker Loudness Assembly PT01 Component Locations

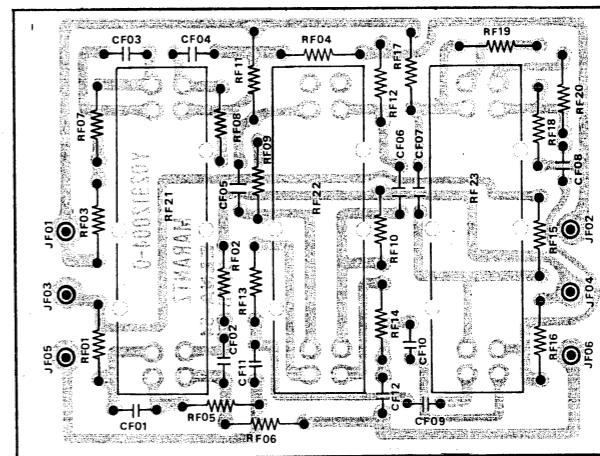


Figure 12. Tone Control Volume Unit PF01 component Locations

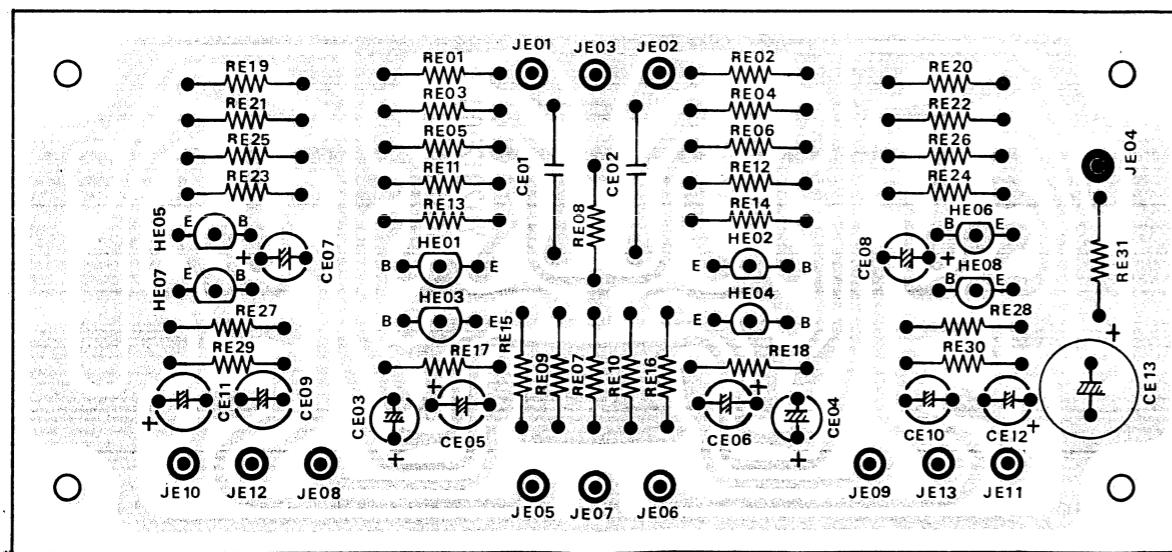


Figure 10. Tone and Pre-Amplifier Assembly PE01 Component Locations

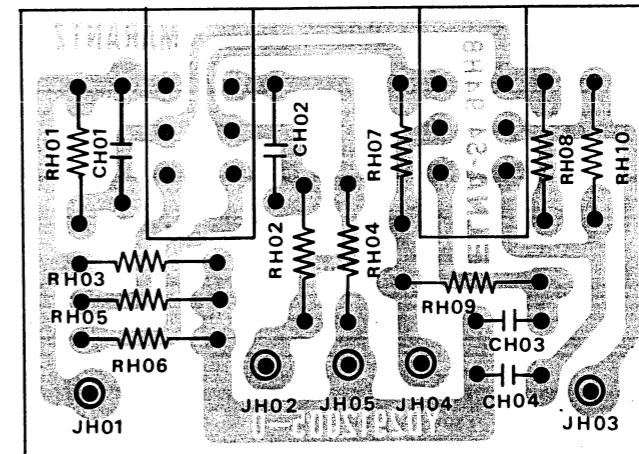


Figure 13. High and Low Filter Unit Assembly PH01 Component Locations

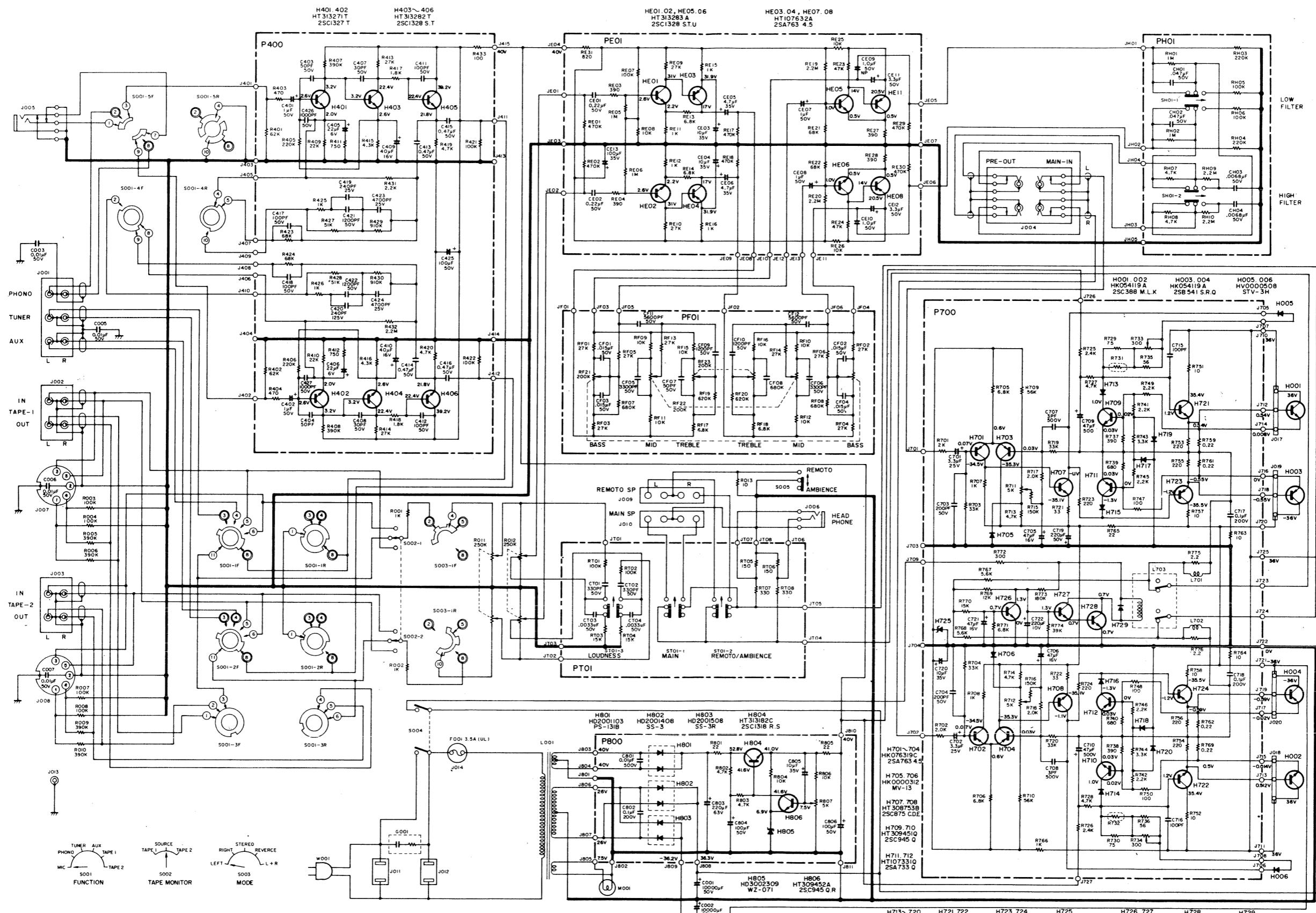


Figure 15. Schematic Diagram

PARTS LIST

U: For U.S.A.
E: For Europe

REF. DESIG.	U	E	PART NO.	DESCRIPTION
A 0103	1	1	291206340	Front Panel Assembly, Complete
	1	1	291206301	Escutcheon, Front Panel
0104	1	1	291240101	Frame, Plastic
0105	1	1	291206302	Escutcheon, Plastic Plate
0106	3	3	285025901	Bush, Slider Guide
0107	3	3	285425901	Bush, Slider Guide
0108	6	6	288625901	Bush, Pushbutton Guide
0109	2	2	273125901	Bush, Pushbutton Guide
0110	1	1	291205303	Cover, Indicator Light
0111	1	1	292630301	Mask
0122	1	1	291205301	Cover, Front Panel Protector
P400 PHONO AMP. BOARD				
P400	1	1	YD2912001	P. W. Board PHONO AMP.
	1	1	ZZ2912001	P.W. Board Assembly
R401	1	1	RT0562314	Resistor 62KΩ ±5% 1/4W
R402	1	1	RT0562314	Resistor 62KΩ ±5% 1/4W
R403	1	1	RT0550114	Resistor 500Ω ±5% 1/4W
R404	1	1	RT0550114	Resistor 500Ω ±5% 1/4W
R405	1	1	RN0522414	Resistor 220KΩ ±5% 1/4W
R406	1	1	RN0522414	Resistor 220KΩ ±5% 1/4W
R407	1	1	RN0539414	Resistor 390KΩ ±5% 1/4W
R408	1	1	RN0539414	Resistor 390KΩ ±5% 1/4W
R409	1	1	RT0522314	Resistor 22KΩ ±5% 1/4W
R410	1	1	RT0522314	Resistor 22KΩ ±5% 1/4W
R411	1	1	RT0575114	Resistor 750Ω ±5% 1/4W
R412	1	1	RT0575114	Resistor 750Ω ±5% 1/4W
R413	1	1	RT0527314	Resistor 27KΩ ±5% 1/4W
R414	1	1	RT0527314	Resistor 27KΩ ±5% 1/4W
R415	1	1	RT0543214	Resistor 4.3KΩ ±5% 1/4W
R416	1	1	RT0543214	Resistor 4.3KΩ ±5% 1/4W
R417	1	1	RT0518214	Resistor 1.8KΩ ±5% 1/4W
R418	1	1	RT0518214	Resistor 1.8KΩ ±5% 1/4W
R419	1	1	RT0547214	Resistor 4.7KΩ ±5% 1/4W
R420	1	1	RT0547214	Resistor 4.7KΩ ±5% 1/4W
R421	1	1	RT0510414	Resistor 100KΩ ±5% 1/4W
R422	1	1	RT0510414	Resistor 100KΩ ±5% 1/4W
R423	1	1	RT0568314	Resistor 68KΩ ±5% 1/4W
R424	1	1	RT0568314	Resistor 68KΩ ±5% 1/4W
R425	1	1	RT0510214	Resistor 1KΩ ±5% 1/4W
R426	1	1	RT0510214	Resistor 1KΩ ±5% 1/4W
R427	1	1	RT0551314	Resistor 51KΩ ±5% 1/4W
R428	1	1	RT0551314	Resistor 51KΩ ±5% 1/4W
R429	1	1	RT0591414	Resistor 910KΩ ±5% 1/4W
R430	1	1	RT0591414	Resistor 910KΩ ±5% 1/4W
R431	1	1	RT0522514	Resistor 2.2MΩ ±5% 1/4W
R432	1	1	RT0522514	Resistor 2.2MΩ ±5% 1/4W
R433	1	1	RT0510114	Resistor 100Ω ±5% 1/4W
C401	1	1	EE1050501	Electroly Cap 1μF 50V±20%
C402	1	1	EE1050501	Electroly Cap 1μF 50V±20%
C403	1	1	DD1650001	Ceramic Cap 50PF 50V±10%
C404	1	1	DD1650001	Ceramic Cap 50PF 50V±10%
C405	1	1	EV2260066	Electroly Cap 22μF 6V
C406	1	1	EV2260066	Electroly Cap 22μF 6V
C407	1	1	DD1630001	Ceramic Cap 30PF 50V±10%
C408	1	1	DD1630001	Ceramic Cap 30PF 50V±10%
C409	1	1	EA4760169	Electroly Cap 47μF 16V ±10%
C410	1	1	EA4760169	Electroly Cap 47μF 16V ±10%
C411	1	1	DD1610101	Ceramic Cap 100PF 50V±10%
C412	1	1	DD1610101	Ceramic Cap 100PF 50V±10%
C413	1	1	DF1747405	Film Cap 0.47μF 50V±20%
C414	1	1	DF1747405	Film Cap 0.47μF 50V±20%

REF. DESIG.	U	E	PART NO.	DESCRIPTION
C415	1	1	DF1747405	Film Cap 0.47μF 50V±20%
C416	1	1	DF1747405	Film Cap 0.47μF 50V±20%
C417	1	1	DD1610101	Ceramic Cap 100PF 50V±10%
C418	1	1	DD1610101	Ceramic Cap 100PF 50V±10%
C419	1	1	DF6524150	Film Cap 240PF 125V±5%
C420	1	1	DF6524150	Film Cap 240PF 125V±5%
C421	1	1	DF5412201	Film Cap 1200PF 50V±2%
C422	1	1	DF5412201	Film Cap 1200PF 50V±2%
C423	1	1	DF5547201	Film Cap 4700PF 25V±5%
C424	1	1	DF5547201	Film Cap 4700PF 25V±5%
C425	1	1	EA1070509	Electroly Cap 100μF 50V ±10%
C426	1	1	DD1620101	Ceramic Cap 200PF 50V±10%
C427	1	1	DD1620101	Ceramic Cap 200PF 50V±10%
H401	1	1	HT313271T	Transistor 2SC1327 (T)
H402	1	1	HT313271T	Transistor 2SC1327 (T)
H403	1	1	HT313282A	Transistor 2SC1328 (S.T)
H404	1	1	HT313282A	Transistor 2SC1328 (S.T)
H405	1	1	HT313282A	Transistor 2SC1328 (S.T)
H406	1	1	HT313282A	Transistor 2SC1328 (S.T)
J401	~	15	YP1000113	Plug
0713	6	6	51100305S	B H M Screw B 3 × 5
0717	2	2	51440314A	P H M Screw P 3 × 14 W/S
0718	2	2	54020301A	Flat Washer
0719	2	2	53110303A	Hexagon Nut
P700	1	1	YD2912007	P700 MAIN BOARD
			PPB Board	MAIN AMP.
			ZZ2912007	P W B Assembly
R701	1	1	RT0520214	Resistor 20KΩ ±5% 1/4W
R702	1	1	RT0520214	Resistor 20KΩ ±5% 1/4W
R703	1	1	RT0533214	Resistor 33KΩ ±5% 1/4W
R704	1	1	RT0533214	Resistor 33KΩ ±5% 1/4W
R705	1	1	RT0568214	Resistor 6.8KΩ ±5% 1/4W
R706	1	1	RT0568214	Resistor 6.8KΩ ±5% 1/4W
R707	1	1	RT0510214	Resistor 1KΩ ±5% 1/4W
R708	1	1	RT0510214	Resistor 1KΩ ±5% 1/4W
R709	1	1	RT0556314	Resistor 56KΩ ±5% 1/4W
R710	1	1	RT0556314	Resistor 56KΩ ±5% 1/4W
R711	1	1	RA0502017	Trimming Resist 5KΩ (B)
R712	1	1	RA0502017	Trimming Resist 5KΩ (B)
R713	1	1	RT0547214	Resistor 47KΩ ±5% 1/4W
R714	1	1	RT0547214	Resistor 47KΩ ±5% 1/4W
R715	1	1	RT0515414	Resistor 150KΩ ±5% 1/4W
R716	1	1	RT0515414	Resistor 150KΩ ±5% 1/4W
R717	1	1	RT0520214	Resistor 2.0KΩ ±5% 1/4W
R718	1	1	RT0520214	Resistor 2.0KΩ ±5% 1/4W
R719	1	1	RT0533214	Resistor 33KΩ ±5% 1/4W
R720	1	1	RT0533214	Resistor 33KΩ ±5% 1/4W
R721	1	1	GF0533014	Resistor 33Ω ±5% 1/4W
R722	1	1	GF0533014	Resistor 33Ω ±5% 1/4W
R723	1	1	GF0522114	Resistor 220Ω ±5% 1/4W
R724	1	1	GF0522114	Resistor 220Ω ±5% 1/4W
R725	1	1	RT0518214	Resistor 1.8KΩ ±5% 1/4W
R726	1	1	RT0518214	Resistor 1.8KΩ ±5% 1/4W
R727	1	1	RT0547214	Resistor 4.7KΩ ±5% 1/4W
R728	1	1	RT0547214	Resistor 4.7KΩ ±5% 1/4W
R729	1	1	RT0575014	Resistor 75Ω ±5% 1/4W
R730	1	1	RT0575014	Resistor 75Ω ±5% 1/4W

REF. DESIG.	U	E	PART NO.	DESCRIPTION
R731	1	1	HH0000303	Thermistor STD - 04
R732	1	1	HH0000303	Thermistor STD - 04
R733	1	1	RA0301002	Trimming Resist 300Ω (B)
R734	1	1	RA0301002	Trimming Resist 300Ω (B)
R735	1	1	RT0556014	Resistor 56Ω ±5% 1/4W
R736	1	1		

U: For U.S.A.
E: For Europe

REF. DESIG.	U	E	PART NO.	DESCRIPTION	REF. DESIG.	U	E	PART NO.	DESCRIPTION
P800	1	1	YD2912006	P800 POWER BOARD P W Board Power Supply	CE01	1	1	DF1722405	Film Cap 0.22μF 50V±20%
	1	1	ZZ2912006	P W Board Assembly	CE02	1	1	DF1722405	Film Cap 0.22μF 50V±20%
R801	1	1	GF0522014	Resistor 22Ω ±5% 1/4W	CE03	1	1	EA1060359	Electroly Cap 10μF 35V ^{+10%} _{-10%}
R802	1	1	RT0547214	Resistor 4.7KΩ ±5% 1/4W	CE04	1	1	EA1060359	Electroly Cap 10μF 35V ^{+10%} _{-10%}
R803	1	1	RT0547214	Resistor 4.7KΩ ±5% 1/4W	CE05	1	1	EE4750251	Electroly Cap 47μF 35V±20%
R804	1	1	RT0510314	Resistor 10KΩ ±5% 1/4W	CE06	1	1	EE4750251	Electroly Cap 47μF 35V±20%
R805	1	1	RC0000012	Resistor 0Ω	CE07	1	1	EE1050501	Electroly Cap 1μF 50V±20%
R806	1	1	RT0510314	Resistor 10KΩ ±5% 1/4W	CE08	1	1	EE1050501	Electroly Cap 1μF 50V±20%
R807	1	1	RA0502013	Trimming Resist 5KΩ (B) 1/4W	CE09	1	1	EQ1050501	Electroly Cap 1μF 50V±30%
					CE10	1	1	EQ1050501	Electroly Cap 1μF 50V±30%
C801	1	1	DK1810351	Ceramic Cap 0.01μF 500V	CE11	1	1	EE3350501	Electroly Cap 3.3μF 50V±20%
C802	1	1	DF1710452	Film Cap 0.1μF 200V±20%	CE12	1	1	EE3350501	Electroly Cap 3.3μF 50V±20%
C803	1	1	EA2270631	Electroly Cap 220μF 63V	CE13	1	1	EA1070359	Electroly Cap 100μF 35V ^{+10%} _{-10%}
C804	1	1	EA1070509	Electroly Cap 100μF 50V ^{+10%} _{-10%}	HE01	1	1	HT313283A	Transistor 2SC1328 S.T.U
C805	1	1	EA1060359	Electroly Cap 10μF 35V ^{+10%} _{-10%}	HE02	1	1	HT313283A	Transistor 2SC1328 S.T.U
C806	1	1	EA1070509	Electroly Cap 100μF 50V ^{+10%} _{-10%}	HE03	1	1	HT107632A	Transistor 2SA763
H801	1	1	HD2001103	Diode DS-131B	HE04	1	1	HT107632A	Transistor 2SA763
H802	1	1	HD2001408	Diode SS-3	HE05	1	1	HT313283A	Transistor 2SC1328 S.T.U
H803	1	1	HD2001508	Diode SS-3R	HE06	1	1	HT313283A	Transistor 2SC1328 S.T.U
H804	1	1	HT315092C	Transistor 2SC1509 R.S	HE07	1	1	HT107632A	Transistor 2SA763
H805	1	1	HD3002309	Diode WZ-071	HE08	1	1	HT107632A	Transistor 2SA763
H806	1	1	HT309452A	Transistor 2SC945 QR	JE01	~	13	YP1000113	Plug
J801					JE13				
~									
J811	11	11	YP1000114	Plug	0202	1	1	291216050	Bracket K, Front Chassis K
					0206	1	1	291225901	Bush, Pilot Light
					0209	1	1	291210903	Shield, Slider Mounting
PE01	1	1	YD2912003	PE01 PRE-TONE BOARD	0211	6	6	51102605A	B H M Screw B 2.6 x 5
	1	1	ZZ2912003	P W Board PRE-TONE AMP	0212	2	2	51100306A	B H M Screw B 3 x 6
				P W Board Assembly	0213	4	4	51040305A	F H M Screw F 3 x 5
RE01	1	1	RT0547414	Resistor 470KΩ ±5% 1/4W	0214	2	2	291210102	Support, Stand-Off
RE02	1	1	RT0547414	Resistor 470KΩ ±5% 1/4W	0215	2	2	51100306A	B H M Screw B 3 x 6
RE03	1	1	RT0539114	Resistor 390Ω ±5% 1/4W	0220	1	1	291210904	Shield, For PF01
RE04	1	1	RT0539114	Resistor 390Ω ±5% 1/4W	0221	3	3	51100306A	B H M Screw B 3 x 6
RE05	1	1	RT0510514	Resistor 1MΩ ±5% 1/4W	0226	1	1	282816013	Bracket, Chassis, Left
RE06	1	1	RT0510514	Resistor 1MΩ ±5% 1/4W	0227	1	1	282816014	Bracket, Chassis, Right
RE07	1	1	RT0510414	Resistor 100KΩ ±5% 1/4W	0228	4	4	51100306A	B H M Screw B 3 x 6
RE08	1	1	RT0510314	Resistor 10KΩ ±5% 1/4W	0231	1	1	29121090	Shield
RE09	1	1	RT0527314	Resistor 27KΩ ±5% 1/4W	0232	2	2	51100306A	B H M Screw B 3 x 6
RE10	1	1	RT0527314	Resistor 27KΩ ±5% 1/4W	0234	1	1	51100306A	B H M Screw B 3 x 6
RE11	1	1	RT0510214	Resistor 1KΩ ±5% 1/4W	0235	1	1	53110303A	Hexagon Nut
RE12	1	1	RT0510214	Resistor 1KΩ ±5% 1/4W	0219	2	2	51100306A	B H M Screw B 3 x 6
RE13	1	1	RT0568214	Resistor 6.8KΩ ±5% 1/4W	PT01	1	1	YD2912002	PT01 SP-LOUDNESS BOARD
RE14	1	1	RT0568214	Resistor 6.8KΩ ±5% 1/4W		1	1	ZZ2912002	P W Board SP-LOUDNESS
RE15	1	1	RT0510214	Resistor 1KΩ ±5% 1/4W					P W Board Assembly
RE16	1	1	RT0510214	Resistor 1KΩ ±5% 1/4W	RT01	1	1	RT0510414	Resistor 100KΩ ±5% 1/4W
RE17	1	1	RT0547414	Resistor 470KΩ ±5% 1/4W	RT02	1	1	RT0510414	Resistor 100KΩ ±5% 1/4W
RE18	1	1	RT0547414	Resistor 470KΩ ±5% 1/4W	RT03	1	1	RT0515314	Resistor 15KΩ ±5% 1/4W
RE19	1	1	RT0522514	Resistor 2.2MΩ ±5% 1/4W	RT04	1	1	RT0515314	Resistor 15KΩ ±5% 1/4W
RE20	1	1	RT0522514	Resistor 2.2MΩ ±5% 1/4W	RT05	1	1	GJ0515101	Resistor 150Ω ±5% 1W
RE21	1	1	RT0568314	Resistor 68KΩ ±5% 1/4W	RT06	1	1	GJ0515101	Resistor 150Ω ±5% 1W
RE22	1	1	RT0568314	Resistor 68KΩ ±5% 1/4W	RT07	1	1	GJ0533102	Resistor 330Ω ±5% 2W
RE23	1	1	RT0547314	Resistor 47KΩ ±5% 1/4W	RT08	1	1	GJ0533102	Resistor 330Ω ±5% 2W
RE24	1	1	RT0547314	Resistor 47KΩ ±5% 1/4W	CT01	1	1	DD1533101	Ceramic Cap 330PF 50V±10%
RE25	1	1	RT0510314	Resistor 10KΩ ±5% 1/4W	CT02	1	1	DD1533101	Ceramic Cap 330PF 50V±10%
RE26	1	1	RT0510314	Resistor 10KΩ ±5% 1/4W	CT03	1	1	DF1633305	Film Cap 0.033μF 50V±10%
RE27	1	1	RT0539114	Resistor 390Ω ±5% 1/4W	CT04	1	1	DF1633305	Film Cap 0.033μF 50V±10%
RE28	1	1	RT0539114	Resistor 390Ω ±5% 1/4W	ST01	1	1	SP0203003	Push SW
RE29	1	1	RT0547414	Resistor 470KΩ ±5% 1/4W					
RE30	1	1	RT0547414	Resistor 470KΩ ±5% 1/4W					
RE31	1	1	RT0582114	Resistor 820Ω ±5% 1/4W					

U: For U.S.A.
E: For Europe

REF. DESIG.	U	E	PART NO.	DESCRIPTION
JT01 ~ JT08	8	8	YP1000113	Plug
PF01	1	1	YD2912004	PF01 TONE, VOLUME BOARD
	1	1	ZZ2912004	P W Board TONE VOLUME
				P W Board Assembly
RF01	1	1	RT0527314	Resistor 27KΩ ±5% 1/4W
RF02	1	1	RT0527314	Resistor 27KΩ ±5% 1/4W
RF03	1	1	RT0527314	Resistor 27KΩ ±5% 1/4W
RF04	1	1	RT0527314	Resistor 27KΩ ±5% 1/4W
RF05	1	1	RT0527314	Resistor 27KΩ ±5% 1/4W
RF06	1	1	RT0527314	Resistor 27KΩ ±5% 1/4W
RF07	1	1	RT0568414	Resistor 680KΩ ±5% 1/4W
RF08	1	1	RT0568414	Resistor 680KΩ ±5% 1/4W
RF09	1	1	RT0510314	Resistor 10KΩ ±5% 1/4W
RF10	1	1	RT0510314	Resistor 10KΩ ±5% 1/4W
RF11	1	1	RT0510314	Resistor 10KΩ ±5% 1/4W
RF12	1	1	RT0510314	Resistor 10KΩ ±5% 1/4W
RF13	1	1	RT0527314	Resistor 27KΩ ±5% 1/4W
RF14	1	1	RT0527314	Resistor 27KΩ ±5% 1/4W
RF15	1	1	RT0510314	Resistor 10KΩ ±5% 1/4W
RF16	1	1	RT0510314	Resistor 10KΩ ±5% 1/4W
RF17	1	1	RT0568214	Resistor 6.8KΩ ±5% 1/4W
RF18	1	1	RT0568214	Resistor 6.8KΩ ±5% 1/4W
RF19	1	1	RT0562414	Resistor 620KΩ ±5% 1/4W
RF20	1	1	RT0562414	Resistor 620KΩ ±5% 1/4W
RF21	1	1	RS0204001	Variable Resist 200KΩ (B) BASS
RF22	1	1	RS0204001	Variable Resist 200KΩ (B) MID
RF23	1	1	RS0204001	Variable Resist 200KΩ (B) TREBLE
CF01	1	1	DF1615305	Film Cap 0.015μF 50V±10%
CF02	1	1	DF1615305	Film Cap 0.015μF 50V±10%
CF03	1	1	DF1615305	Film Cap 0.015μF 50V±10%
CF04	1	1	DF1615305	Film Cap 0.015μF 50V±10%
CF05	1	1	DF1633205	Film Cap 3300PF 50V±10%
CF06	1	1	DF1633205	Film Cap 3300PF 50V±10%
CF07	1	1	DD1650001	Ceramic Cap 50PF 50V±10%
CF08	1	1	DD1650001	Ceramic Cap 50PF 50V±10%
CF09	1	1	DF1612205	Film Cap 1200PF 50V±10%
CF10	1	1	DF1612205	Film Cap 1200PF 50V±10%
CF11	1	1	DF1656205	Film Cap 5600PF 50V±10%
CF12	1	1	DF1656205	Film Cap 5600PF 50V±10%
JF01 ~ JF06	6	6	YP1000113	Plug
R011	1	1	RS0254006	Variable Res 250KΩ Balance
S004	1	1	SP0201015	Push SWITCH POWER SWITCH
G001	1		BF1040002	Ceramic Cap
C004	1		DF1722380	Film Cap 0.02μF 1000V
0208	1	1	291216011	Bracket
0217	2	2	51100306A	B H M Screw
J005	1	1	YJ0100087	Jack
0207	1	1	291212001	Insulator
J006	1	1	YJ0100065	MIC
3636	1	1	291212001	HEAD PHONE
PH01	1	1	YD2912005	PH02 HI, LOW FILTER BOARD
	1	1	ZZ2912005	P W Board HI, LOW, FILTER
				P W Board Assembly

REF. DESIG.	U	E	PART NO.	DESCRIPTION
RH01	1	1	RT0510514	Resistor 1MΩ ±5% 1/4W
RH02	1	1	RT0510514	Resistor 1MΩ ±5% 1/4W
RH03	1	1	RT0522414	Resistor 220KΩ ±5% 1/4W
RH04	1	1	RT0522414	Resistor 220KΩ ±5% 1/4W
RH05	1	1	RT0510414	Resistor 100KΩ ±5% 1/4W
RH06	1	1	RT0510414	Resistor 100KΩ ±5% 1/4W
RH07	1	1	RT0547214	Resistor 4.7KΩ ±5% 1/4W
RH08	1	1	RT0547214	Resistor 4.7KΩ ±5% 1/4W
RH09	1	1	RT0522514	Resistor 2.2MΩ ±5% 1/4W
RH10	1	1	RT0522514	Resistor 2.2MΩ ±5% 1/4W
CH01	1	1	DF1647305	Film Cap 0.047μF 50V±10%
CH02	1	1	DF1647305	Film Cap 0.047μF 50V±10%
CH03	1	1	DF1668205	Film Cap 0.0068μF 50V±10%
CH04	1	1	DF1668205	Film Cap 0.0068μF 50V±10%
SH01	1	1	SP0202012	Push SWITCH
JH01	~	5	YP1000114	Plug
JH05				
S001	1	1	SR0406004	Rotary SW SELECTOR
S002	1	1	SR0203004	Rotary SW TAPE MONITOR
R001	1	1	RT0510214	Resistor 1KΩ ±5% 1/4W
R002	1	1	RT0510214	Resistor 1KΩ ±5% 1/4W
S003	1	1	SR0205008	Rotary SW MODE
R012	1	1	RM0254028	Variable Res. MASTER VR250K
M001	1	1	IN1008030	Lamp, Pilot Indicator
0233	1	1	121000501	Clamper
0302	1		291216002	Bracket, Rear Panel
0304		1	291216004	Bracket, Rear Panel
0311	1	1	291200502	Clamper
0326	8	8	51100308S	B H M Screw B 3 x 4
0327	8	8	53110303A	Hexagon Nut
0328	4	4	51570306B	P H Tapt Screw P 3 x 6 ST
0330	4	4	51100-308S	B H M Screw B 3 x 8
0331	2	2	53110303A	Hexagon Nut
0332	4	4	51100308S	B H M Screw B 3 x 8
0333	4	4	53110303S	Hexagon Nut
0334	2	2	289611801	Spacer, A.C. Outlet
0402	1		145525903	Bush
0403		1	282125901	Bush
0404	2		53110303A	Hexagon Nut
0405	2		54050300R	T L Washer OR
0406	2		51060316A	P H M Screw P 3 x 16
0407	2		55060305S	T R Rivet Cap
0408	1		284906702	
0411	1	1	282816003	Bracket, Rear Corner, Left
0412	1	1	282816004	Bracket, Rear Corner, Right
0413	4	4	51100306S	B H M Screw B 3 x 6
0417	1	1	54050400R	T L Washer OR
0419	2	2	51100306S	B H M Screw B 3 x 6
R003	1	1	RT0510414	Resistor 100Ω ±5% 1/4W
R004	1	1	RT0510414	Resistor 100Ω ±5% 1/4W
R005	1	1	RT0539414	Resistor 390KΩ ±5% 1/4W
R006	1	1	RT0539414	Resistor 390KΩ ±5% 1/4W
R007	1	1	RT0510414	Resistor 100Ω ±5% 1/4W
R008	1	1	RT0510414	Resistor 100Ω ±5% 1/4W
R009	1	1	RT0539414	Resistor 390KΩ ±5% 1/4W
R010	1	1	RT0539414	Resistor 390KΩ ±5% 1/4W
R013	1	1	GS1010020	Resistor 10Ω ±10% 20W

U: For U.S.A.
E: For Europe

REF. DESIG.	U	E	PART NO.	DESCRIPTION		
C006	1	1	DK1710301	Ceramic Cap	0.01μF	50V
C007	1	1	DK1710301	Ceramic Cap	0.01μF	50V
W001	1	1	YC0240010	AC Cord		
F001	1	1	FS1035001	Fuse	3.5A	UL
F002	1	1	FS2035091	Fuse	3.5A	UL
J001	1	1	YT0206006	Terminal	PHONO TUNER AUX	
J002	1	1	YT0204008	Terminal	TAPE-1	
J003	1	1	YT0204008	Terminal	TAPE-2	
J004	1	1	YT0204009	Terminal	MAIN-IN, PRE-OUT	
J007	1	1	YJ1100016	Socket	TAPE-1 DIN	
J008	1	1	YJ1100016	Socket	TAPE-2 DIN	
J009	1	1	YT0304006	Terminal	SPEAKER	
J010	1	1	YT0304006	Terminal	SPEAKER	
J011	1	1	YJ0400048	Socket	AC OUTLET	
J012	1	1	YJ0400048	Socket	AC OUTLET	
J013	1	1	YT0101003	Terminal	GROUND	
J014	1	1	YJ0800012	Socket	FUSE HOLDER	
S005	1	1	SS0202038	Slide SWITCH	AMBIENCE	
0628	1	1	62030039W	Lug		
C003	1	1	DK1710301	Ceramic Cap	0.01μF	50V
C005	1	1	DK1710301	Ceramic Cap	0.01μF	50V
0316	1	281816006	Bracket			
0317	4	51100312A	B H M Screw	B 3 x 12		
0322	1	285412001	Insulator			
J025	1	YL0106004	Terminal			
0618	2	138200503	Clamper			
F001	1	FS1030090	Fuse	3A		
F002	1	FS1010090	Fuse	1A		
F003	1	FS1010090	Fuse	1A		
F004	1	FS1005090	Fuse	0.5A		
J021	1	YJ0800009	Socket			
J022	1	YJ0800009	Socket			
J023	1	YJ0800009	Socket			
J024	1	YJ0800009	Socket			
0521	1	282816012	Bracket			
0522	4	51100306A	B H M Screw	B 3 x 6		
0523	4	53110303A	Hexagon Nut			
0524	1	282826514	Indicator			
0319	1	282126902	Protector			
0320	1	288912005	Insulator			
0506	1	291205350	Cover K, Filters			
0509	4	291210105	Support, For PE01			
0512	2	51100306A	B H M Screw	B 3 x 9		
0624	1	138200503	Clamper			
0625	1	51570305B	P H Tapt Screw	P 3 x 5 ST		
0626	1	54050300R	T L Washer OR			
C001	1	EC1090501	Electroly Cap	10,000μF	50V	
C002	1	EC1090501	Electroly Cap	10,000μF	50V	
0510	1	291200501	Clamper, Filter Holder			
0511	2	291211801	Spacer, Filter Holder			
0229	4	4	51570306B	P H Tapt Screw	P 3 x 6 ST	
0230	6	6	51100304A	B H M Screw	B 3 x 4	
0318	2	51100306S	B H M Screw	B 3 x 6		
0321	2	51100306S	B H M Screw	B 3 x 6		
0323	4	51100306S	B H M Screw	B 3 x 6		

REF. DESIG.	U	E	PART NO.	DESCRIPTION		
0324	4		53110303A	Hexagon Nut		
0414	8	8	51100304A	B H M Screw	B 3 x 4	
0502	1	1	291210501	Chassis, Main		
0513	4	4	51570306B	P H Tapt Screw	P 3 x 6 ST	
0515	1	1	273025901	Bush, Insulation		
0602	4	4	51570306B	P H Tapt Screw	P 3 x 6 ST	
0603	4	4	51570306B	P H Tapt Screw	P 3 x 6 ST	
0611	4	4	53110401A	Hexagon Nut		
0612	4	4	54020401A	Flat Washer P		
0613	4	4	54040402A	Spring Washer		
0619	2	2	51570306B	P H Tapt Screw	P 3 x 6 ST	
0620	1	1	138200503	Clamper		
0621	1	1	51570306B	P H Tapt Screw	P 3 x 6 ST	
0622	1	1	54050300R	T L Washer OR		
0629	1	1	51570306B	P H Tapt Screw	P 3 x 6 ST	
0715	4	4	51570306B	P H Tapt Screw	P 3 x 6 ST	
0812	4	4	275905701	Leg		
0813	4	4	51490410S	B H M Screw F S	B 4 x 10 F/S	
0931	1	1	28868610	Label	Marantz	
L001	1		TS1960208	Transformer, Power		
L001		1	TS1960209	Transformer, Power		
0112	4	4	52017039J	Bolt, Front Panel		
0116	2	2	282815401	Knob SELECTOR BALANCE		
0117	2	2	282815402	Knob MODE TAPE MONITOR		
0118	5	5	281815401	Knob HI LOW FILTER		
0119	4	4	285015401	LOUDNESS SPEAKER BALANCE		
0120	1	1	290415404	Knob BASS TREBLE MID		
0120				Knob POWER SW		
0802	1	1	282825701	Lid, Top Cover		
0803	4	4	257711807	Spacer, For Lid		
0804	4	4	51480406S	B H M Screw F	B 4 x 6 F	
0807	1	1	282825702	Lid, Bottom Cover		
0809	8	8	51100406S	B H M Screw	B 4 x 6	
0901	1		291226501	Indicator Name Plate		
0903		1	291226503	Indicator Name Plate		
0911	2	2	51100305S	B H M Screw	B 3 x 5	
0913			282186102	Label Caution		
0914	1		951091102	Label UL FACTORY CODE		
0915	1		951120101	Label UL		
0924	1	1	257886101	Label CAUTION: TO PREVENT		
0925	1	1	257886102	Label DO NOT REMOVE		
0926	1	1	257886103	Label SEE MARKING		
1122	4		952281501	Serial No Card		
1124	4		952301512	Serial No Card		
1002	1		291285101	Owner Instruction Manual		
1004	1		291285122	Instructions Set		
1005	1		288685110	Instructions Set		
1011	1		291285601	Schematic		
1012	1		291285602	Schematic		
1020	1	1	281885104	Instructions Packing		
1021	1	1	282885108	Instructions Accessories		
1022	1	1	288585107	Instructions Misc.		
1024	1		281881301	Envelope		
1026	1	1	257785401	Guarantee Card		
1027	1	1	257785102	Instructions Red Tag		
1028	1		257781301	Envelope		
1102	1	1	291280101	Packing Case Inner Carton		
1103	1	1	291280111	Packing Case Outer Carton		
1108	2	2	289180301	Partitioner (Cushion)		
1112	1	1	901383033	Polyethylene Bag, Set		

U: For U.S.A.
E: For Europe

REF. DESIG.	U	E	PART NO.	DESCRIPTION
1114	1	1	901302501	Polyethylene Bag, Printed Material
1117	1	1	102980401	Sleeve, AC Cord
1118		1	956000004	Hang Tag Voltage Indicator
1119	2	2	273182101	Silicagel (Desiccant)
			291285501	Service Manual

REF. DESIG.	U	E	PART NO.	DESCRIPTION

10. TECHNICAL SPECIFICATIONS

Gain-Phono (low level) to pre-amp	55dB
Output	
Phono to recording output	40dB
High level to pre-amp output	15dB
Input Impedance-Low level input	Phono 47K Microphone 47K
High level input	> 50K
Input sensitivity-Phono (low)	1.8mV to equal 1 volt output at pre-amp out
Frequency Response	±1.0dB, 20Hz to 20KHz at rated power output
Intermodulation Distortion	Less than 0.3% at rated power output (S.M.P.T.E.)
Damping Factor (20 to 20KHz)	Greater than 20 into 8 ohms load
Total Noise-From magnetic	Less than 1.5µV equivalent input at rated phono input to power amp output output into 8 ohms
Volume Tracking	Within 3dB
*Power Output, Band, THD	
Rated Power Output	
(continuous average per channel, all channels driven).	
Power output	38 watts 4 ohms
Power band	20Hz to 20KHz
Total Harmonic Distortion (THD)	0.3%
Power Requirement	120V AC, 50 to 60Hz
At rated output both channels operating	190 Watts
Idling Power (volume control at zero)	48 Watts
Dimensions-Panel width	14-11/64 inches
Panel Height	4-23/32 inches
Depth	11-1/32 inches
Weight-Unit alone	18 lbs.
Packed for shipment	25.3 lbs.

* Power Output Specified in accordance with Federal Trade Commission (FTC) regulations.

NOTE: These specifications and exterior designs may be changed for improvement without advance notice.

SERVICE INFORMATION FOR EUROPEAN MODEL

The information contained here in included the rear panel and main chassis component locations, schematic diagram and voltage conversion.

For the circuit description, alignment method and repairing hints, refer to the original service manual.

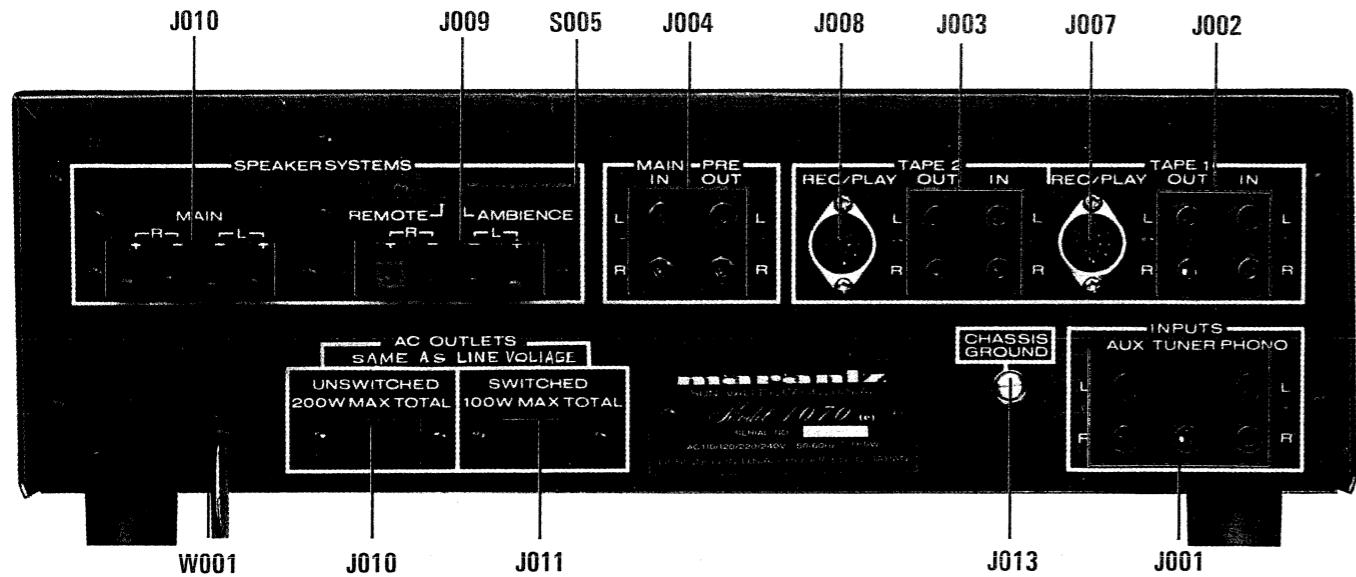


Figure 16. Rear Panel Adjustment and Component Locations

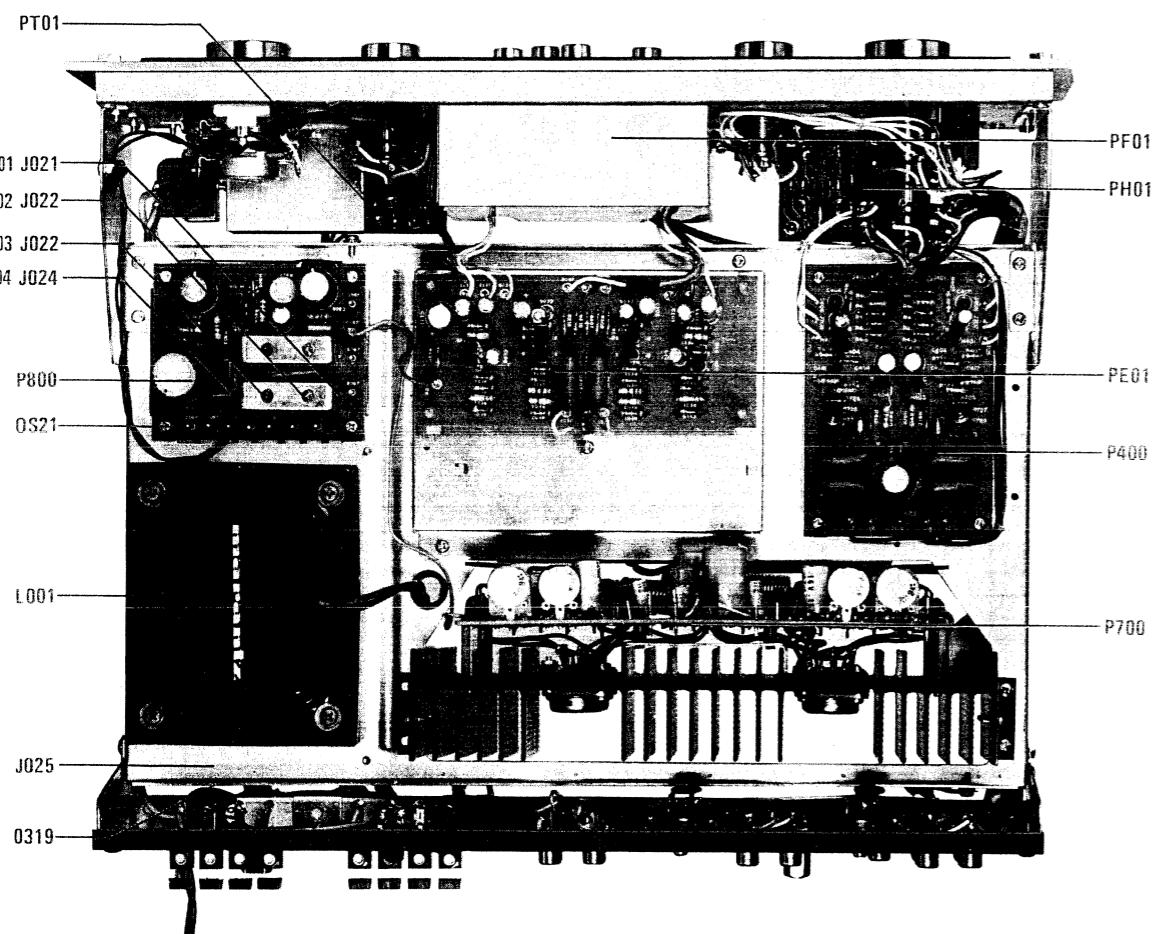


Figure 17. Main Chassis Component Locations (Bottom View)

VOLTAGE CONVERSION

This model is equipped with a universal power transformer to permit operation at 110, 120, 220 and 240V AC 50 to 60Hz.

To convert the unit to the required voltage perform the following steps:

- (1) Remove the cover.
- (2) Change the jumper wires as illustrated below for the required AC voltage.

CAUTION: DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

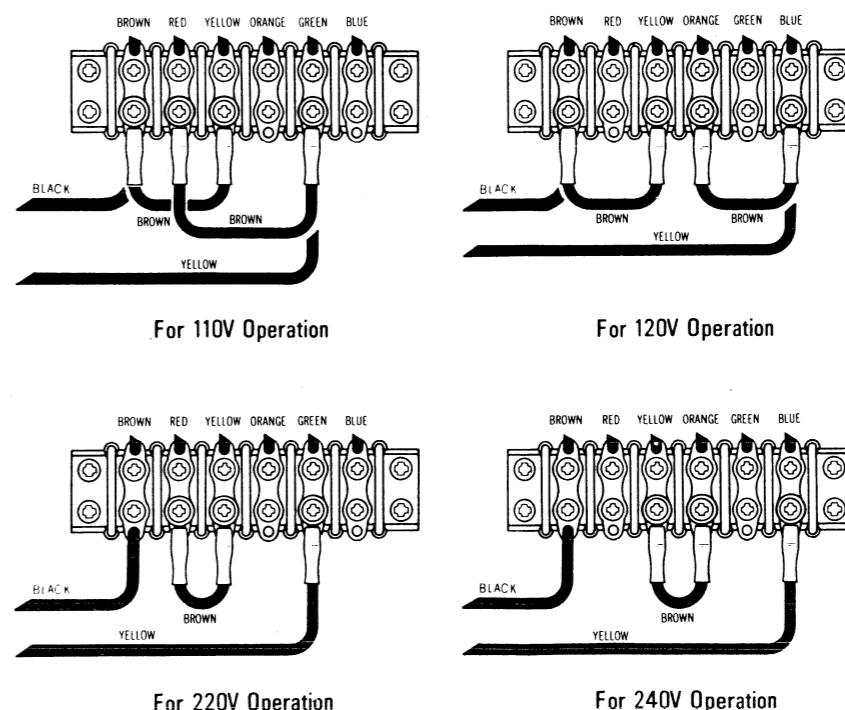


Figure 18. Voltage Conversion Chart

Instruction for the use in the range other than specified in FTZ codes

Achtung für die Leute, die in dem Gebiet wohnen,
wo die FTZ-Bestimmungen vorherrschen sind.

Sollte das Gerät auch für Frequenzen ausserhalb des in den FTZ-Bestimmungen angegebenen Bereiches empfangebereit sein, bitten wir, den Bereich durch Nachstellen des Kernes in der Oszillatorenspule (in der Abbildung mit "FTZ" gekennzeichnet) so zu korrigieren, dass er den Bestimmungen entspricht.

marantz

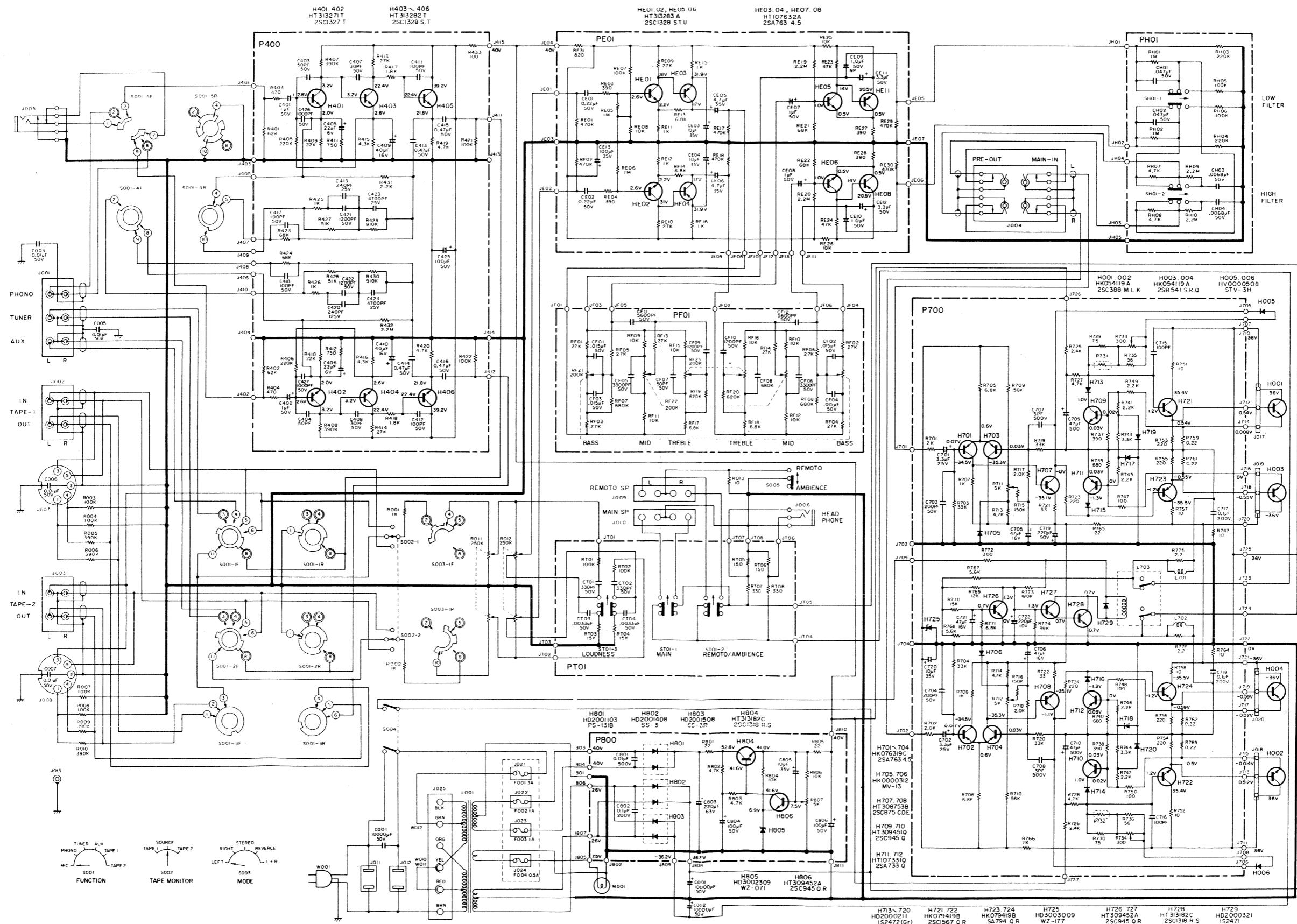


Figure 20. Schematic Diagram